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(54) Circuit for driving a liquid crystal panel.

(57) According to the present invention, there is provided a circuit for driving a liquid crystal panel includes a plurality of shift registers (11Aa, 12Aa, ..., 1mAa) connected in cascade on an A array for transferring data in one direction, a plurality of shift registers (11Bc, 12Bc, ..., 1mBc) on a B array for transferring the data transferred from the shift registers (11Aa, 12Aa, ..., 1mAa) in a direction opposite to the one direction, and a plurality of circuit blocks (11Ac, 12Ac, ..., 1mAc; 11Bc, 12Bc, ..., 1mBc) on the A and B arrays for temporarily storing the data transferred from the shift registers (11Aa, 12Aa, ..., 1mAa; 11Bc, 12Bc, ..., 1mBc). The circuit blocks (11Ac, 12Ac, ..., 1mAc; 11Bc, 12Bc, ..., 1mBc) include output stages for supplying the data outside a semiconductor chip, and the output stages are constituted of MOS transistors (3A3, 3B3). The MOS transistors of the first circuit block (11Ac) on the A array and the m-th circuit block (1mBc) of the B array, those of the second circuit block (12Ac) on the A array and the (m-1)-th circuit block (1m-1Bc) on the B array, ..., those of the m-th circuit block (1mAc) on the A array and the first circuit block (11Bc) on the B array are symmetrically arranged, respectively. The currents flow through the symmetrical MOS transistors in the same direction.

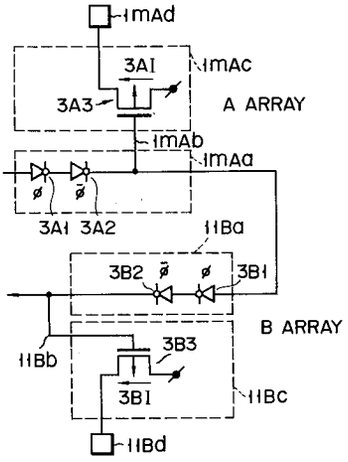

FIG. 11

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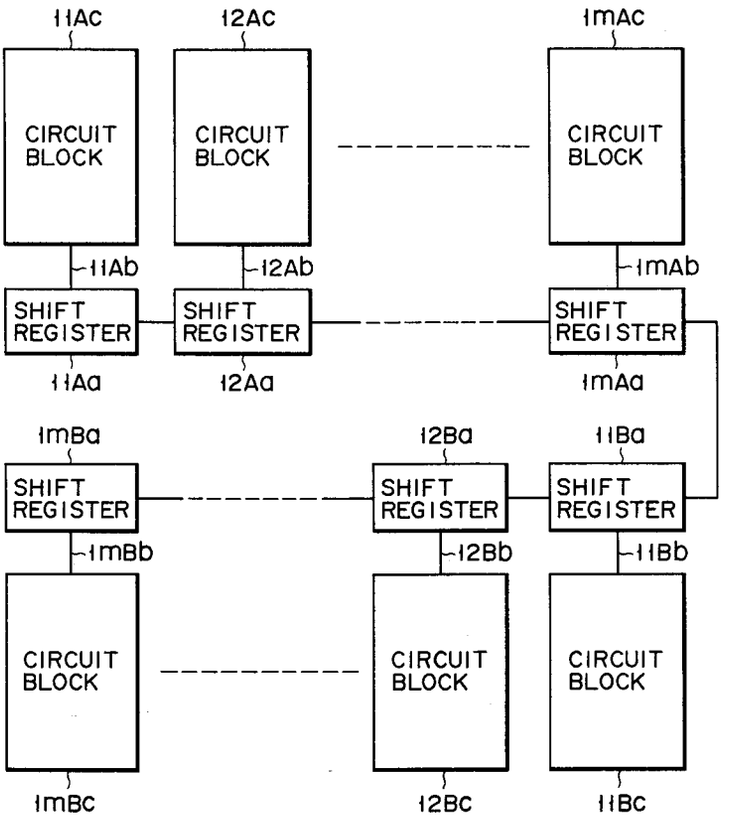
11AC
12AC
1mAC
CIRCUIT BLOCK
CIRCUIT BLOCK
CIRCUIT BLOCK
11Ab
12Ab
1mAb
SHIFT REGISTER
SHIFT REGISTER
SHIFT REGISTER
11Aa
12Aa
1mAa
1mBa
12Ba
11Ba
SHIFT REGISTER
SHIFT REGISTER
SHIFT REGISTER
1mBb
12Bb
11Bb
CIRCUIT BLOCK
CIRCUIT BLOCK
CIRCUIT BLOCK
1mBc
12Bc
11Bc

FIG. 9

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EUROPEAN SEARCH REPORT

Application Number

EP 90 12 0478

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	EDN ELECTRICAL DESIGN NEWS. vol. 30, no. 18, August 1985, NEWTON, MASSACHUSETTS US pages 83 - 88; E. TEJA: 'LCD-driver/controller ICs offer versatility in configuration and function' * page 85, middle column, line 18 - right column, line 4; figure 2 *	1	G 09 G 3/36
A	PATENT ABSTRACTS OF JAPAN vol. 13, no. 196 (E-755)10 May 1989 & JP-A-1 018 250 (TOSHIBA CO.) 23 January 1989 * abstract *	1,2	
A	EP-A-0 078 402 (TOKYO SHIBAURA DENKI K.K.) May 1983 * page 3, line 22 - page 4, line 19; figures 1,2 *	1	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)
G 09 G H 01 L

The present search report has been drawn up for all claims

Place of search	Date of completion of search	Examiner
The Hague	24 February 92	CORSI F.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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